

REMARKS

Claims 1-27 were originally filed in the present application. Claims 9, 19, 21 and 27 are currently canceled without prejudice or disclaimer. Thus, claims 1-8, 10-18, 20 and 22-26 are currently pending in the present application.

Reconsideration of this application in light of the above amendments and the following remarks is requested.

Rejections under 35 U.S.C. §102: Fukuyoshi

Claim 10

Claim 10 recites:

10. A microlens array, comprising:
a substrate having a plurality of photo sensors located therein;
a microlens layer comprising a plurality of microlenses located over the substrate, each of the plurality of microlenses including a substantially convex portion substantially aligned over a corresponding one of the plurality of photo sensors, wherein the plurality of microlenses are separated by a plurality of gaps; and
a dielectric film located over and conforming to the microlens layer and substantially filling the plurality of gaps;
wherein a fill factor corresponding to a ratio of light incident on the microlens array and the plurality of photo sensors is at least about 50%.

Claim 10 was rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent Application Publication No. 2001/0009442 to Fukuyoshi ("Fukuyoshi").

The PTO provides in MPEP §2131 that:

"[t]o anticipate a claim, the reference must teach every element of the claim...."

Therefore, to sustain this rejection with respect to claim 10, Fukuyoshi must contain all of the above claimed elements of the claim. However, in the context of claim 10, Fukuyoshi does not disclose a fill factor corresponding to a ratio of light incident on the microlens array and the plurality of photo sensors is at least about 50%.

Therefore, the §102 rejection of claim 10 is not supported by Fukuyoshi. Consequently, Applicant respectfully requests the Examiner withdraw the §102 rejection of claim 10 based on Fukuyoshi.

Claim 20

Claim 20 recites:

20. A method of manufacturing a microlens array, comprising:
providing a substrate having a plurality of photo sensors located therein;
forming a dielectric layer over the substrate, the dielectric layer having a surface opposite the substrate;
forming a microlens layer comprising a plurality of microlenses on the dielectric layer surface, each of the plurality of microlenses including a substantially convex portion substantially aligned over a corresponding one of the plurality of photo sensors, wherein the plurality of microlenses are separated by a plurality of gaps that each reveal a portion of the dielectric layer surface;
forming a dielectric film on the microlens layer and contacting the dielectric layer surface through each of the plurality of gaps;
forming a color filter over the dielectric film; and
forming a protective layer over the color filter;
wherein a fill factor corresponding to a ratio of a first amount of light incident on the microlens array and a second amount of light incident on the plurality of photo sensors is at least about 50%.

Claim 20 was also rejected under 35 U.S.C. §102(b) as being anticipated by Fukuyoshi. As described above, sustaining this rejection requires Fukuyoshi to contain all of the above claimed elements of the claim. However, in the context of claim 20, Fukuyoshi does not disclose a fill factor corresponding to a ratio of a first amount of light incident on the microlens array and a second amount of light incident on the plurality of photo sensors, the fill factor being at least about 50%.

Therefore, the §102 rejection of claim 20 is not supported by Fukuyoshi. Consequently, Applicant respectfully requests the Examiner withdraw the §102 rejection of claim 20 based on Fukuyoshi.

Rejections under 35 U.S.C. §102: Uchida

Claim 1

Claim 1 recites:

1. A microlens device, comprising:
 - a substrate having a first photo sensor and a second photo sensor located therein;
 - a dielectric layer located over the substrate;
 - a first microlens located over the dielectric layer and including a first substantially convex portion substantially aligned over the first photo sensor;
 - a second microlens located over the dielectric layer and including a second substantially convex portion substantially aligned over the second photo sensor, wherein the first and second microlenses are laterally separated by a gap exposing a substantially planar surface of the dielectric layer;
 - a dielectric film located over and conforming to the first microlens and the second microlens, the dielectric film also contacting the portion of the dielectric layer surface that is exposed in the gap; and
 - a protective layer located over the dielectric film;wherein a fill factor corresponding to a ratio of light incident on the microlens device and the photo sensor is at least about 50%.

Claim 1 was rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent 6,583,438 to Uchida ("Uchida"). As described above, sustaining this rejection requires Uchida to contain all of the above claimed elements of the claim. However, in the context of claim 1, Uchida does not disclose a fill factor corresponding to a ratio of light incident on the microlens device and the photo sensor is at least about 50%.

Therefore, the §102 rejection of claim 1 is not supported by Uchida. Consequently, Applicant respectfully requests the Examiner withdraw the §102 rejection of claim 1 based on Uchida.

Claim 10

Claim 10 was rejected under 35 U.S.C. §102(e) as being anticipated by Uchida. Therefore, to sustain this rejection, Uchida must contain all of the above claimed elements of the claim. However, in the context of claim 10, Uchida does not disclose a fill factor corresponding to a ratio of light incident on the microlens array and the plurality of photo sensors is at least about 50%.

Therefore, the §102 rejection of claim 10 is not supported by Uchida. Consequently, Applicant respectfully requests the Examiner withdraw the §102 rejection of claim 10 based on Uchida.

Claim 20

Claim 20 was also rejected under 35 U.S.C. §102(e) as being anticipated by Uchida. As described above, sustaining this rejection requires Uchida to contain all of the above claimed elements of the claim. However, in the context of claim 20, Uchida does not disclose a fill factor corresponding to a ratio of a first amount of light incident on the microlens array and a second amount of light incident on the plurality of photo sensors, the fill factor being at least about 50%.

Therefore, the §102 rejection of claim 20 is not supported by Uchida. Consequently, Applicant respectfully requests the Examiner withdraw the §102 rejection of claim 20 based on Uchida.

Rejections Under 35 U.S.C. §103

Various claims were also rejected under 35 U.S.C. §103(a) as being unpatentable over one or more of Fukuyoshi, Uchida, Izumi, Sekine, and Abramovich. However, whether taken separately or together, these references fail to teach or suggest a fill factor corresponding to a ratio of light incident on the microlens array and the plurality of photo sensors, the fill factor being at least about 50%. Because this limitation exists in each of the currently-pending independent claims 1, 10 and 20, there can be no combination of Fukuyoshi, Uchida, Izumi, Sekine and Abramovich which can teach each and every element of claim 1, 10 or 20.

As the PTO recognizes in MPEP § 2142:

... The Examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. If the Examiner does not produce a prima facie case, the Applicant is under no obligation to submit evidence of nonobviousness...

It is submitted that, in the present case, the Examiner cannot factually support a *prima facie* case of obviousness because, as described above, the references do not teach the claimed subject matter, even when the references are combined.

As provided in 35 U.S.C. §103:

A patent may not be obtained ... if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

the subject matter pertains ... (Emphasis added)

Thus, when evaluating a claim for determining obviousness, all limitations of the claim must be evaluated. However, neither Uchida, Fukuyoshi, Izumi, Sekine nor Abramovich teaches a fill factor corresponding to a ratio of light incident on the microlens array and the plurality of photo sensors, the fill factor being at least about 50%. Since, whether taken separately or together, the references fail to teach each and every element of claim 1, 10, or 20, it is impossible for any combination of the references to render obvious the subject matter of claim 1, 10, or 20, and the explicit terms of §103 cannot be met.

Thus, the Examiner's burden of factually supporting a *prima facie* case of obviousness has clearly not been met with respect to claims 1, 10 and 20 and their dependent claims. Accordingly, Applicant respectfully requests the Examiner withdraw the §103(a) rejections.

2. The combination of references is improper

Assuming, arguendo, that the above argument for non-obviousness doesn't apply (which is clearly not the case based on the above), there is still another mutually exclusive and compelling reason why Uchida, Fukuyoshi, Izumi, Sekine and Abramovich cannot be applied to reject claim 1, 10 or 20 under 35 U.S.C. §103. The MPEP provides in §2142 that:

...the Examiner must step backward in time and into the shoes worn by the hypothetical 'person of ordinary skill in the art' when the invention was unknown and just before it was made....The Examiner must put aside knowledge of the Applicant's disclosure, refrain from using hindsight, and consider the subject matter claimed 'as a whole'.

Here, neither Uchida, Fukuyoshi, Izumi, Sekine nor Abramovich teaches, or even suggests, the desirability of combination since none teach the specific fill factor limitation recited in claims 1, 10 and 20. Thus, it is clear that none of these references provides any incentive or motivation supporting the desirability of their combination to arrive at the presently claimed subject matter. Therefore, there is simply no basis in the art for combining any of Uchida, Fukuyoshi, Izumi, Sekine and Abramovich to support a 35 U.S.C. §103 rejection of claim 1, 10, or 20, or their dependent claims.

In this context, the MPEP further provides at §2143.01:

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.

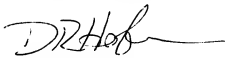
In the above context, the courts have repeatedly held that, absent some teaching, suggestion or incentive supporting combination, obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention. In the present case, it is clear that the Examiner's combination can arise solely from hindsight based on the invention, because there is no showing, suggestion, incentive or motivation in any of the cited references for the combination as applied to claim 1, 10 or 20. Therefore, for this mutually exclusive reason, the Examiner's burden of factually supporting a *prima facie* case of obviousness clearly cannot be met with respect to claim 1, 10 or 20. Consequently, Applicant respectfully requests the Examiner withdraw the §103(a) rejections.

Conclusion

It is clear from all of the foregoing that independent claims 1, 10, and 20 are in condition for allowance. Dependent claims 2-8, 11-18, and 22-26 depend from and further limit independent claims 1, 10, and 20 and, therefore, are allowable as well.

It is believed that all matters set forth in the Office Action have been addressed, and that claims 1-8, 10-18, 20 and 22-26 are in condition for allowance. Favorable consideration and an early indication of the allowability of the claims are respectfully requested. Should the Examiner deem that an interview with Applicant's undersigned attorney would expedite consideration, the Examiner is invited to call the undersigned attorney at the telephone number indicated below.

Respectfully submitted,



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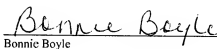
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Bonnie Boyle